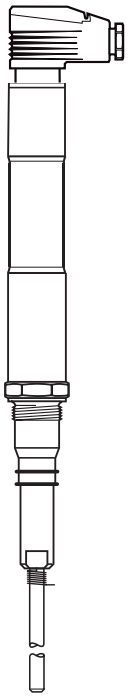
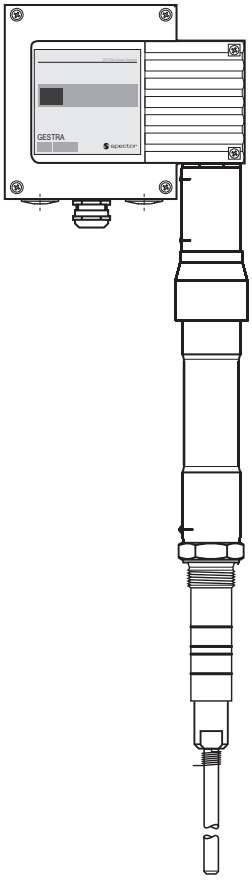


NRG 1...-50 with four-pole connector



NRG 111-50F with terminal box made from aluminium

Water Level Limiter

Level Electrode

NRG 16-50, NRG 17-50, NRG 19-50, NRG 111-50

Description

The level electrodes NRG 1...-50 are used in conjunction with level switch NRS 1-50 as water level limiters for steam boiler plants and (pressurised) hot water installations.

Water level limiters switch off the heating when the water level falls below the set minimum level (low water).

Function

When the water level falls below the low level, the level electrode is exposed and a low level alarm is triggered in the level switch NRS 1-50. This switchpoint "Low water level (LW)" is determined by the length of the electrode tip. The electrode operation is based on the conductive measuring principle using the electrical conductivity of the water for signalling water level.

The self-monitoring function ensures that an alarm will also be triggered if the electrode insulation is contaminated or has developed a leak and/or if there is a malfunction in the electrical connection.

The level electrode is installed inside steam boilers, vessels or inlet lines of hot-water systems. The protection tube provided on site ensures the function.

One level electrode NRS 1...-50 can be installed together with one GESTRA level electrode, one level switch or transmitter for water level control and low level alarm in one single protection tube or level pot.

If the level electrode is installed in a level pot outside the boiler, make sure that the connecting lines are rinsed regularly. In addition, the logic unit SRL is required to monitor the purging times and the purging sequence.

If the connecting lines for steam ≥ 40 mm and water ≥ 100 mm the installation is considered as "inside". In this case the purging process does not have to be monitored.

Application in potentially explosive atmospheres

Do not use the equipment in potentially explosive atmospheres.

Technical Data

Service pressure
NRG 16-50, PN 40, 32 bar at 238 °C
NRG 17-50, PN 63, 60 bar at 275 °C
NRG 19-50, PN 160, 100 bar at 311 °C
NRG 111-50, PN 320, 183 bar at 357 °C

Mechanial connection
Screwed G ¾ A, ISO 228-1 (NRG 16-50, NRG 17-50, NRG 19-50)
Screwed G 1 A, ISO 228-1 (NRG 111-50)

Materials
Sheath: 1.4301 X5 CrNi18-10
Screw-in body: 1.4571 X6 CrNiMoTi 17-12-2 (NRG 16-50, NRG 17-50, NRG 19-50)
Screw-in body: 1.4529, X1NiCrMoCuN25-20-7 (NRG 111-50)
Measuring electrode: 1.4571 X6 CrNiMoTi 17-12-2 (NRG 16-50, NRG 17-50, NRG 19-50)
Measuring electrode: 1.4122, X39CrMo17-1 (NRG 111-50)
Electrode tip: 1.4401 X5 CrNiMo 17-12-2
Electrode insulation: Gylon® (NRG 16-50, NRG 17-50, NRG 19-50)
Electrode insulation: special ceramic (NRG 111-50)
NRG 1...-50: Four-pole connector: polyamid (PA)
NRG 1...-50F: Terminal box 3.2161 G AlSi8Cu3

Lengths supplied
500 mm, 1000 mm, 1500 mm, 2000 mm, 2500 mm, 3000 mm

ph value
Max. admissible: 10 (NRG 111-50)

Electrical connection
NRG 1...-50: Four-pole connector, cable gland M16
NRG 1...-50F: Aluminium terminal box, cable gland M20

Protection
IP 65 to EN 60529

Max. admissible ambient temperature
70 °C

Weight
Approx. 1.2 kg (without extension) (NRG 16-50, NRG 17-50, NRG 19-50)
Approx. 1.8 kg (without extension) (NRG 111-50)

Dimensions

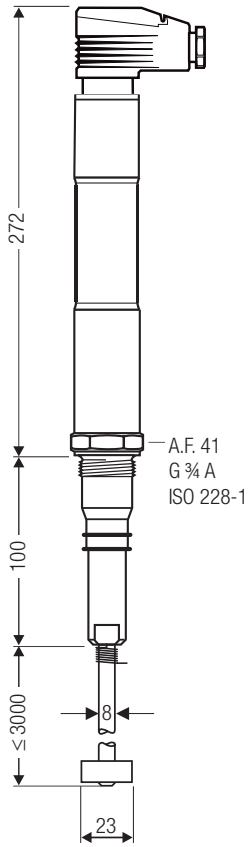


Fig. 1 NRG 16-50, NRG 17-50, NRG 19-50 with four-pole connector and measuring surface extension

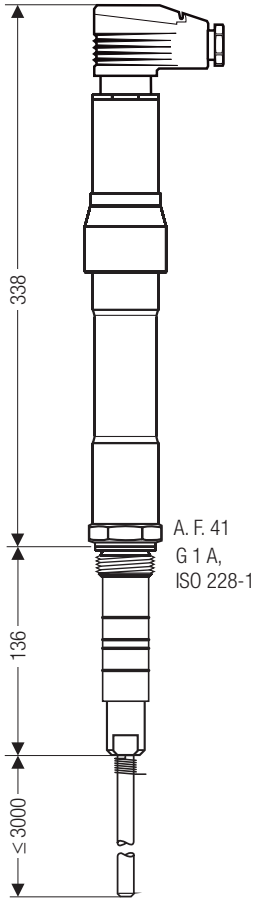


Fig. 2 NRG 111-50 with four-pole connector

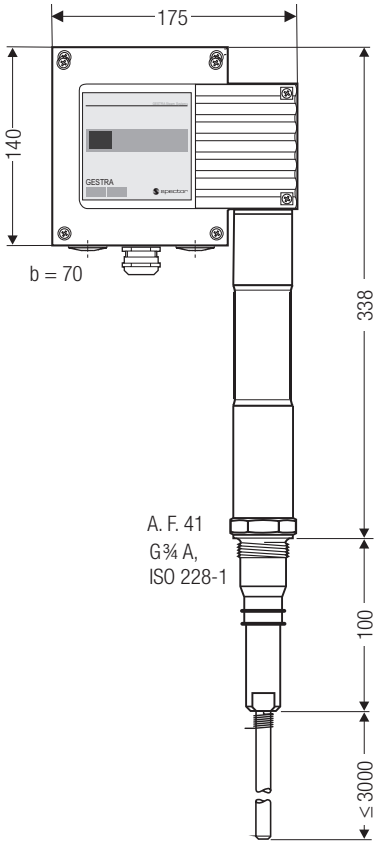


Fig. 3 NRG 16-50F, NRG 17-50F, NRG 19-50F with terminal box made from aluminium

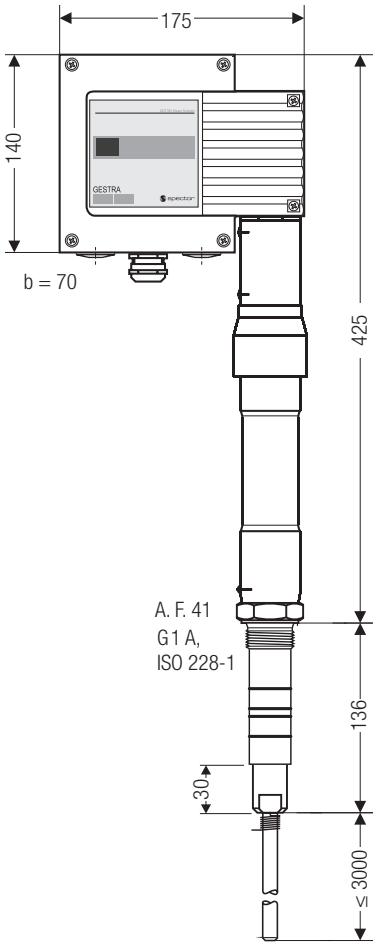


Fig. 4 NRG 111-50F with terminal box made from aluminium

Important Notes

Installation

- **One** level electrode NRG 1...-50 can be installed together with one GESTRA level electrode, one level switch or transmitter for water level control or low level alarm in one single protection tube or level pot (inside diameter 100 mm). If the electrode NRG 1...-50 is installed inside the vessel, it must be at least 40 mm away from the upper vent hole.
- The installation of two water-level limiting electrodes NRG 1...-50 in one single standpipe is not allowed!
- The angle of inclination of the electrode must not exceed 45°, with the length of the electrode rod being limited to 1000 mm.
- If the level switch NRS 1-50 has a response sensitivity of 0.5 µS/cm please use a measuring surface extension.
- For outdoor installations please use level electrode NRG 1...-50 F. Level electrodes with this suffix (F) feature a terminal box made from aluminium.
- Use GESTRA hat flange if the level electrode **NRG 111-50** is to be installed in a flanged standpipe DN 50.

Electrical Connection

To connect the level electrode please use:

- For level switch NRS 1-50 with response sensitivity 10 µS: Screened multi-core control cable, min. conductor size 0.5 mm^2, e.g. LiYCY 4 x 0.5 mm^2, max. length 100 m.
- For level switch NRS 1-50 with response sensitivity 0.5 µS: Double-screened multi-core low-capacitance data cable, min. conductor size 0.5 mm^2, **Li2YCY PiMF 2 x 2 x 0.5 mm^2, max. length 30 m.**

Order & Enquiry Specification

GESTRA Level electrode NRG 1...-50

PN....., connection....., inspection.....

Length supplied .....mm

Water Level Limiter

Level Electrode

NRG 16-50, NRG 17-50, NRG 19-50, NRG 111-50

Key

1. Flange PN 40, PN 63, PN 160, PN 320 DN 50, DIN EN 1092-01 (for 1 electrode) Flange PN 40, PN 63, PN 160, DN 100, DIN EN 1092-01 (for 2 electrodes)
2. For the approval of the boiler standpipe with connecting flange the relevant regulations must be considered.
3. Vent hole
4. Electrode rod d = 8 mm
5. Protection tube DN 80 (in France acc. to AFAQ ≥ 100)
6. Low water (LW)
7. Reducer DIN 2616-2, K-88.9 x 3.2 - 42.4 x 2.6 W
8. High water (HW)
9. Electrode distance ≥ 14 mm (air gap and creepage distance)
10. GESTRA hat flange PN 320, DN 50, DIN EN 1092-01
11. Standpipe / connecting flange DN 50
12. Protection tube DN 100
13. Reducer DIN 2616-2, K-114.3 x 3.6 - 48.3 x 2.9 W
14. Level pot ≥ DN 80

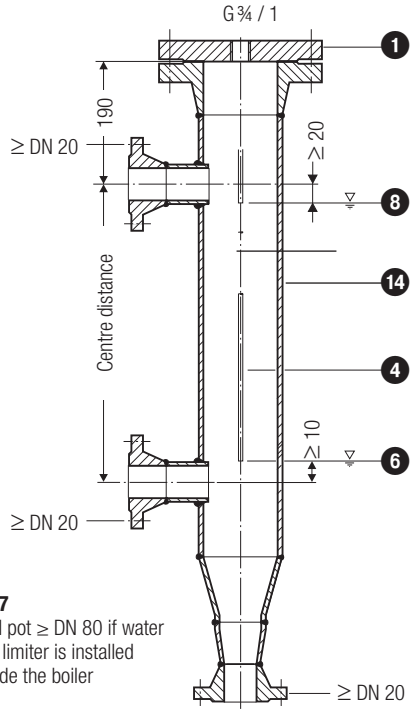


Fig. 7
Level pot ≥ DN 80 if water level limiter is installed outside the boiler

Directives and Standards

For more information on the conformity of the equipment as well as applied Directives and Standards please refer to our Declaration of Conformity and associated certificates and/or approvals.

Supply in accordance with our general terms of business.

Examples of installation

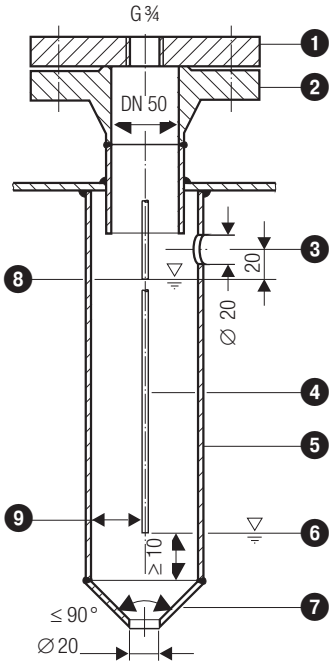


Fig. 5 Protection tube if electrode is used as internal water-level limiter

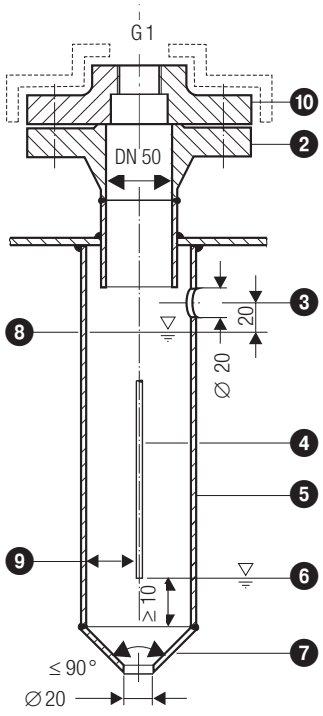


Fig. 6 Protection tube if electrode (NRG 111-50) is used as internal water-level limiter

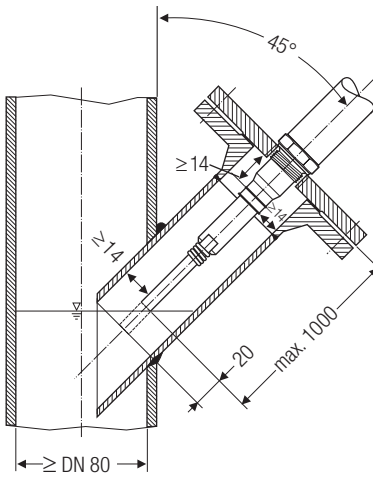


Fig. 8 Inclined installation, e. g. in ascending inlet lines of hot-water installations or vessels Standpipe/connecting flange DN 50

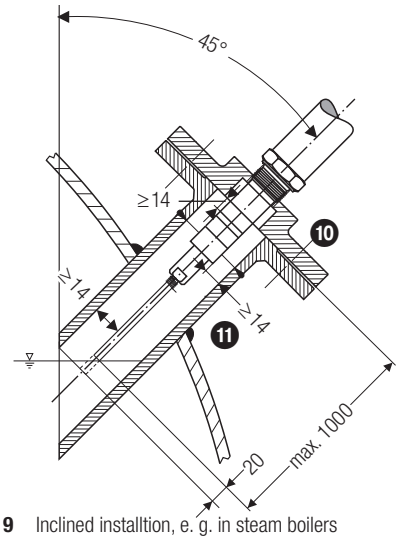


Fig. 9 Inclined installtion, e. g. in steam boilers Standpipe/connecting flange DN 50 (NRG 111-50)

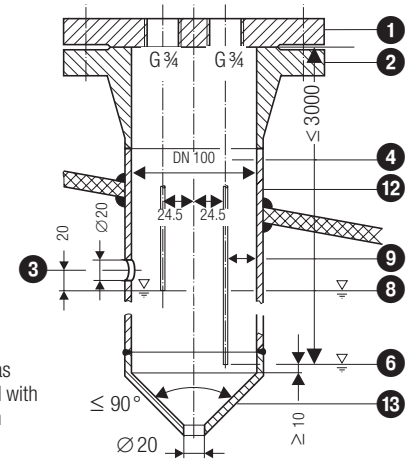


Fig. 10 Protection tube if electrode is used as internal water level-limiter combined with water level control or low level alarm

GESTRA AG

Münchener Straße 77, 28215 Bremen, Germany
Telefon +49 421 3503-0, Telefax +49 421 3503-393
E-mail info@de.gestra.com, Web www.gestra.com